Immunization
Frequently Asked Questions

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Why do ACIP recommendations sometimes differ from FDA licensure in the manufacturers' package inserts?

- **ACIP recommendations take into account not only information in the package inserts, but also additional data that may have become available since vaccine licensure, as well as expert opinion and implementation feasibility issues**
- **An ACIP recommendation is not a mandate, but it is considered a standard of practice**

If a child received their first and only dose of DTaP before 1 year of age and is now 6 years old, how many doses of tetanus-containing vaccine does the child need?

- **The child needs 3 more doses of DTaP:**
  - DTaP-2—- ow
  - DTaP-3—4 weeks later
  - DTaP-4—6 cale- dar mo- ths later (if the fourth dose is give- after 4 years of age, a fifth dose is - ot - ecessary)
- **If there is not time to give DTaP-4 before the child reaches 7 years of age, then a dose of Tdap* should be given at 7 years of age**

*ACIP off-label recommendation
http://www.cdc.gov/mmwr/pdf/wk/mm5126.pdf
http://www.cdc.gov/mmwr/pdf/wk/mm6001.pdf

If a 5-year-old child has never had a dose of tetanus-containing vaccine, how many doses of DTaP should they receive?

- **The child needs 4 doses of DTaP:**
  - DTaP-1—- ow
  - DTaP-2—4 weeks later
  - DTaP-3—4 weeks later
  - DTaP-4—6 cale- dar mo- ths later
- **For children who start the DTaP/DT series after the first birthday, a fifth dose is not necessary**

http://www.cdc.gov/mmwr/pdf/wk/mm5126.pdf

If a 6-year-old child has had no immunizations, can Pediarix be used?

- **Yes, Pediarix is approved for doses 1, 2, and 3 of DTaP, IPV, and HepB for children 6 weeks through 6 years of age**
- **Pediarix is not approved for DTaP-4, DTaP-5, or IPV-4, or for children 7 years of age or older**

http://www.cdc.gov/mmwr/pdf/wk/mm5210.pdf

A provider gave the second HepA dose less than 6 months after the first HepA dose. When should a repeat HepA dose be administered?

- **The ACIP General Recommendations on Immunization state: "Doses of any vaccine administered ≥5 days earlier than the minimum interval or age should not be counted as valid doses and should be repeated as age appropriate. The repeat dose should be spaced after the invalid dose by the recommended minimum interval."**
- **The repeat dose should be administered 6 calendar months after the invalid second HepA dose**

http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf

Can an adult receive 2 doses of the pediatric HepA vaccine to make an adult dose?

- **The pediatric formulations of HepA vaccines are FDA-approved for use in children and adolescents 12 months through 18 years of age**
- **The adult formulations of HepA vaccines are FDA-approved for use in adults 19 years of age and older**
- **These formulations should be used as indicated. However, if it is discovered on record review that an adult received 2 doses (0.5 mL each) of a pediatric formulation of HepA vaccine on the same day, CDC does not recommend revaccination**

http://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM224555.pdf
http://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM110049.pdf

If a patient received MMR vaccine 2 weeks prior to becoming pregnant, does that put the fetus at risk?

- **ACIP recommends deferral of pregnancy for 4 weeks (28 days) after MMR vaccination because of a theoretical risk to the fetus***
- **If MMR is inadvertently administered to a pregnant woman or a pregnancy occurs within 28 days of vaccination, the woman should be counseled about the theoretical risk to the fetus**
- **The observed theoretical risk for congenital rubella syndrome (CRS) has been 0%. This is considerably lower than the ≥20% risk associated with wild rubella virus infection of mothers during the first trimester of pregnancy**
- **MMR vaccination during pregnancy should not be considered an indication for termination of pregnancy**

*ACIP off-label recommendation
http://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf

Which health care facility staff (including clinicians) should receive influenza vaccine?

- **It is important to vaccinate ALL hospital and outpatient-care personnel, especially those that have direct contact with patients. In addition to physicians and nurses, all other full-time and part-time employees should be vaccinated, including those in radiology, laboratories, pharmacies, human resources, facilities management (housekeeping), food services, and laundry services**
- **Vaccinate volunteers, too**
- **Emergency response workers, nursing home and assisted living employees, and home care providers should also be vaccinated**

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm

Should there be concern regarding the influenza vaccine and high-risk pregnancy patients?

- **Yes! The concern is that, if they are not vaccinated, these women will not have the best protection available against influenza**
- **Postlicensure studies for inactivated vaccines given to pregnant women have not identified any unusual patterns of pregnancy outcomes (no increased risk observed for congenital anomalies, spontaneous abortion [SAB], or fetal death after inactivated influenza vaccine [IIV])**
- **Influenza vaccine protects the mother, whose pregnancy puts her at increased risk for complications and hospitalization due to greater demands on her cardiac, respiratory, and immune system. In addition, the vaccine provides:**
  - A barrier of protectio- for the i- fa- t
  - Protective mater- al a- tibodies duri- g early i- fa- cy before the i- fa- t is old e- ough for i- flue- za vacci- atio-
  - A possible protective effect for preterm birth (lower risk of preterm birth a- d low birth weight [LBW]) i- wome- who received IIV

http://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6505.pdf; http://www.cdc.gov/vaccines/ed/ciinc/2016-11-09.html

What happens if a child 6 through 35 months old receives a 0.5-mL influenza dose? Is that dose valid and does the child still need another dose 1 month later?

- **Even if a child 6 months through 35 months of age receives a 0.5-mL influenza dose for their first dose of vaccine, the child will still need a second, age-appropriate dose (0.25 mL for Fluzone or 0.5 mL for FluLaval) 4 weeks later**
- **The first dose of influenza vaccine given to children 6 months through 8 years of age is a priming dose because their immune systems have had less exposure to influenza viruses than those of older children and adults. The second dose Is necessary to provide an adequate level of antibody protection**

http://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6505.pdf

If someone 3 years of age or older receives a 0.25-mL dose of Fluzone vaccine, what should be done?

- **If this administration error is discovered in time for the patient to be revaccinated on the same clinic day, the patient can receive another 0.25-mL dose of Fluzone to complete the recommended 0.5-mL dose**
- **If the patient cannot be revaccinated until the next clinic day or after, then the patient should receive a full 0.5-mL dose**

http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf
http://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6505.pdf

Can both brands of Tdap be used for people younger than 10 years and older than 65 years?

- **Either Tdap vaccine may be used when indicated for children 7 through 9 years of age***
- **When feasible, providers should administer Boostrix (GlaxoSmithKline) to adults age 65 and older since it is licensed for this age group. Adacel (Sanofi Pasteur) is licensed for use in people age 10 years through 64 years. However, ACIP concluded that either vaccine is immunogenic in people 65 years and older and will provide protection. A dose of either vaccine is considered valid‡**

*ACIP off-label recommendationfor both Tdap vaccines; ‡ACIP off-label recommendation for Adacel
http://www.cdc.gov/mmwr/pdf/wk/mm6125.pdf

If a pregnant woman received Tdap 24 months ago, should she receive another dose now? If so, why?

- **Yes. ACIP recommends a dose of Tdap in each pregnancy.* Optimal timing for vaccination in the current recommendations is between 27 and 36 weeks' gestation, although Tdap may be given at any time during pregnancy**
- **When a woman gets Tdap during pregnancy, maternal pertussis antibodies transfer to the fetus, likely protecting the newborn against pertussis in early life, before the baby is old enough to have received at least 3 doses of DTaP**
- **Tdap also protects the mother, making it less likely she will get infected with pertussis during or after pregnancy and less likely to transmit it to her infant**
- **Women who were not previously vaccinated with Tdap should receive the vaccine immediately postpartum if they did not receive it during pregnancy**

*ACIP off-label recommendation
http://www.cdc.gov/mmwr/pdf/wk/mm6207.pdf

What are the new ACIP recommendations about when to give a pregnant woman Tdap vaccine?

- **At the October 2016 meeting, ACIP voted to approve the following guidance:**

  "Tdap should be administered between 27 and 36 weeks' gestation, although it may be given at any time during pregnancy.* Currently available data suggest that vaccinating earlier in the 27- through 36-week window will maximize passive antibody transfer to the infant. For women not previously vaccinated with Tdap, if it is not administered during pregnancy, Tdap should be administered immediately postpartum."

*ACIP off-label recommendation

What are the recommendations for giving Tdap to an 11- or 12-year-old who already received a dose as part of a catch-up schedule?

- **Currently, Tdap is recommended for only a single dose across all age groups. Further guidance will be forthcoming on timing of revaccination for persons who have received Tdap previously**
- **Some state laws may require a dose before entry to seventh grade or middle school. CDC defers to state law**

http://www.cdc.gov/mmwr/pdf/wk/mm6001.pdf

What is the immunization schedule for someone 7 years of age or older with no history of tetanus, diphtheria, and pertussis vaccination?

- **For unvaccinated persons 7 years and older (including persons who cannot document prior vaccination), the primary series is 3 doses**
- **The first 2 doses should be separated by at least 4 weeks, and the third dose should be given 6 to 12 months after the second dose**
- **ACIP recommends that Tdap should be used for one of the 3 doses (preferably the first)**
- **A booster dose of Td should be given every 10 years thereafter**

*ACIP off-label recommendation for children 7 through 9 years of age
http://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html#schedule

If minimum intervals between PCV13 and PPSV23 are not met, do doses need to be repeated?

- **ACIP's recommendations for pneumococcal vaccination do not spell out what to do when doses of PCV13 and PPSV23 are given without the recommended minimum interval between them**
- **CDC subject matter experts advise that in such cases, the dose given second does not need to be repeated**
  - This is a- exceptio- to the usual procedure for a mi- imum i- terval violatio- (as described i- ACIP's Ge- eral Recomme- datio- s o- Immu- izatio-)

http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf
http://www.cdc.gov/mmwr/pdf/wk/mm6434.pdf

If a 65-year-old patient inadvertently received a dose of varicella vaccine, can we count the dose as valid or do we have to recall the patient for zoster vaccination?

- **If the intent was to provide protection against zoster (shingles), the patient will need revaccination with zoster vaccine, which contains approximately 14 times more varicella antigen than varicella vaccine**
- **Since both vaccines are live-virus vaccines, zoster vaccine should not be administered until at least 4 weeks (28 days) after the invalid dose of varicella vaccine**
- **CDC encourages providers to submit a VAERS report for vaccine administration errors such as this, even when there is no adverse event (see https://vaers.hhs.gov/index)**

How long should I wait to give zoster vaccine to a patient who has recovered from a shingles infection?

- **ACIP does not have a specific recommendation on this issue**
- **The general guideline for any vaccine is to wait until the acute stage of the illness is over and symptoms have lessened. However, a recent case of shingles is expected to boost the person's immunity to varicella**
- **Zoster vaccine is also intended to boost immunity to varicella. Administering zoster vaccine to a person whose immunity was recently boosted by a case of shingles might reduce the effectiveness of the vaccine**
- **Consider deferring zoster vaccination for 6 to 12 months after the shingles has resolved so that the vaccine can produce a more effective boost to immunity**

What are the recommendations for HepB vaccination and serologic testing of health care personnel (HCP)?

- **Administer a 3-dose HepB vaccine series to unvaccinated HCP who are at risk of exposure to blood or blood-contaminated body fluids**
- **Test for antibody to hepatitis B surface antigen (anti-HBs) 1-2 months after series completion in HCP who have contact with patients or blood**
  - If a- ti-HBs-positive (≥10 mIU/mL), - o further booster doses, testi- g, or postexposure prophylaxis are - ecessary
  - If a- ti-HBs-- egative (<10 mIU/mL), admi- ister a seco- d 3-dose series a- d retest 1-2 mo- ths after completio- of the series
    - If a- ti-HBs-positive, - o further booster doses, testi- g, or postexposure prophylaxis are - ecessary
    - If a- ti-HBs-- egative, test for hepatitis B surface a- tige- (HBsAg) if - ot previously do- e
      - If HBsAg-positive, patie- t is already i- fected with hepatitis B a- d should be referred for follow-up
      - If HBsAg-- egative, patie- t will - eed hepatitis B immu- e globuli- (HBIG) if exposed

http://www.cdc.gov/mmwr/pdf/rr/rr6210.pdf

What are the recommendations for HCP who were vaccinated in the distant past and never tested for immune response?

- **Test for antibody to hepatitis B surface antigen (anti-HBs)**
  - If a- ti-HBs ≥10 mIU/mL, - o further booster doses, testi- g, or postexposure prophylaxis are - ecessary
  - If a- ti-HBs <10 mIU/mL, admi- ister 1 dose of HepB vacci- e a- d test for a- ti-HBs 1-2 mo- ths later
    - If a- ti-HBs-positive, - o further booster doses, testi- g, or postexposure prophylaxis are - ecessary
    - If a- ti-HBs-- egative, admi- ister 2 more doses of HepB vacci- e a- d retest 1-2 mo- ths after completio- of the series
      - If a- ti-HBs-positive, - o further booster doses, testi- g, or postexposure prophylaxis are - ecessary
      - If a- ti-HBs-- egative, test for hepatitis B surface a- tige- (HBsAg) if - ot previously do- e
        - ✓ If HBsAg-positive, patie- t is already i- fected with hepatitis B a- d should be referred for follow-up
        - ✓ If HBsAg-- egative, patie- t will - eed hepatitis B immu- e globuli- (HBIG) if exposed

http://www.cdc.gov/mmwr/pdf/rr/rr6210.pdf; http://www.immunize.org/catg.d/p2109.pdf

What are the recommendations for MMR vaccination and serologic testing of health care personnel (HCP)?

- **<u>All persons</u> working in health care facilities should have documented, readily available presumptive evidence of immunity to measles, mumps, and rubella**
  - Writte- docume- tatio- of 2 doses of live measles a- d live mumps vacci- es or MMR vacci- e admi- istered o- or after the first birthday a- d 28 days apart (O- ly 1 dose of live rubella or MMR vacci- e is required for evide- ce of rubella immu- ity) OR
  - Laboratory evide- ce of immu- ity OR
  - Laboratory co- firmatio- of disease OR
  - Birth before 1957 (except for rubella for wome- who could become preg- a- t)
    - Vacci- atio- should be <u>co- sidered</u> for HCP without other evide- ce of immu- ity

http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf

What are the recommendations for MMR vaccination and serologic testing of health care personnel (HCP)?

- **For HCP without presumptive evidence of immunity, serologic testing before MMR vaccination is not necessary unless considered to be cost-effective**
- **Additional doses of MMR are not recommended for HCP who have 2 documented doses of MMR. Documented age-appropriate vaccination supersedes results of subsequent testing even if titer is negative or equivocal**
  - Exceptio- : Wome- of childbeari- g age whose rubella titer is - ot clearly positive ca- receive a maximum of 3 MMR doses a- d the- - o further testi- g is - ecessary
- **During an outbreak of measles or mumps, 2 doses of MMR are <u>recommended</u> for unvaccinated HCP regardless of birth year who lack laboratory evidence of immunity or laboratory confirmation of disease (1 dose of MMR during rubella outbreak)**

http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf; http://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf

What are the recommendations for MMR vaccination and serologic testing of health care personnel (HCP)?

- **During mumps outbreaks, public health authorities may administer a third dose of MMR vaccine for specifically identified target populations**
- **Criteria to consider prior to administering a third dose in a target population for mumps outbreak control include:**
  - High two-dose vacci- atio- coverage (i.e., vacci- atio- coverage greater tha- 90%);
  - I- te- se exposure setti- gs likely to facilitate tra- smissio- (e.g., schools, colleges, correctio- al facilities, co- gregate livi- g facilities) or health care setti- gs;
  - High attack rates (i.e., more tha- 5 cases per 1,000 populatio-); a- d evide- ce of o- goi- g tra- smissio- for at least two weeks i- the target populatio- (i.e., populatio- with the high attack rates)

http://www.cdc.gov/vaccines/pubs/surv-manual/chpt09-mumps.pdf

What are the recommendations for varicella vaccination and serologic testing of health care personnel (HCP)?

- **Health care institutions should ensure that all HCP have documented, readily available evidence of immunity to varicella**
  - Writte- docume- tatio- of vacci- atio- with 2 doses of varicella vacci- e at least 4 weeks apart OR
  - Laboratory evide- ce of immu- ity or laboratory co- firmatio- of disease OR
  - Diag- osis or verificatio- of a history of varicella disease by a health care provider OR
  - Diag- osis or verificatio- of a history of herpes zoster (HZ) by a health care provider

http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf

What are the recommendations for varicella vaccination and serologic testing of health care personnel (HCP)?

- **For HCP without presumptive evidence of immunity, serologic testing before VAR vaccination is likely to be cost-effective**
- **Additional doses of VAR are not recommended for HCP who have 2 documented doses of VAR. Documented age-appropriate vaccination supersedes results of subsequent testing even if titer is negative or equivocal**
- **Institutions should consider precautions for HCP in whom rash occurs after vaccination**

http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf

What is the recommended 2-dose HPV vaccination schedule?

- **For girls and boys starting the vaccination series before the 15th birthday, the recommended schedule is 2 doses of HPV vaccine. The second dose should be given 6–12 months after the first dose (0, 6–12 month schedule)**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

Why is the 2-dose schedule change recommended only for girls and boys aged 9–14 years?

- **ACIP makes recommendations based on the best scientific evidence available. Immunogenicity studies have shown that 2 doses of HPV vaccine given to 9- through 14-year-olds at least 6 months apart were as good as or better than 3 doses given to older adolescents and young adults. Studies have not been done to show this in adolescents aged 15 years or older**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

If an adolescent receives the first dose of HPV vaccine between the ages of 9 and 14 years and is now 15 years of age, will a second dose complete the series or will 2 more doses be needed to complete the series?

- **A second dose will complete the series. It is not necessary to finish the 2-dose series prior to 15 years of age; it is only required that the series be started before the 15th birthday**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

What is the recommended interval and the minimum interval between the doses in a 2-dose HPV series?

- **The recommended interval between doses of a 2-dose HPV vaccination schedule is 6 calendar months. The minimum acceptable interval is 5 calendar months**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

Does the 4-day grace period apply to the minimum interval between the doses in a 2-dose HPV vaccination series?

- **Yes. The 4-day grace period can be applied to the interval of 5 calendar months between the 2 HPV vaccine doses as long as there is no conflicting state regulation**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

Who should still receive a 3-dose schedule?

- **CDC continues to recommend a 3-dose schedule for persons starting the HPV vaccination series on or after the 15th birthday, and for persons with certain immunocompromising conditions. The second dose should be given 1–2 months after the first dose, and the third dose should be given 6 months after the first dose (0, 1–2*, 6 month schedule)**

*ACIP off-label recommendation
http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

When vaccinating for HPV, what are considered to be immunocompromising conditions?

- **Persons with primary or secondary immunocompromising conditions that might reduce cell-mediated or humoral immunity:**
  - B lymphocyte a- tibody deficie- cies, T lymphocyte complete or partial defects, HIV i- fectio- , malig- a- t - eoplasm, tra- spla- tatio- , autoimmu- e disease, or immu- osuppressive therapy, si- ce immu- e respo- se to vacci- atio- may be atte- uated
- **However, children with conditions that would not suppress the immune response to HPV vaccination can receive a 2-dose schedule if they start the series between 9 and 14 years of age:**
  - Asple- ia, asthma, chro- ic gra- ulomatous disease, chro- ic liver disease, chro- ic lu- g disease, chro- ic re- al disease, CNS a- atomic barrier defects (e.g., cochlear impla- t), compleme- t deficie- cy, diabetes, heart disease, persiste- t compleme- t compo- e- t deficie- cies, or sickle cell disease

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

If an HPV vaccination series was started with 4vHPV vaccine or 2vHPV vaccine and will be completed with 9vHPV vaccine, what are the intervals for the remaining doses in a 3-dose or 2-dose series?

- **Intervals are the same regardless of which vaccine is used**
  - 2-dose series:
    - Dose 1 to Dose 2 – 6 cale- dar mo- ths (mi- imum of 5 cale- dar mo- ths)
  - 3-dose series:
    - Dose 1 to Dose 2 – 8 weeks (mi- imum of 4 weeks)*
    - Dose 2 to Dose 3 – 4 cale- dar mo- ths (mi- imum of 12 weeks)
    - Dose 1 to Dose 3 – 24 weeks (Dose 3 - eed - ot be repeated if it is give- at least 16 weeks after the first dose a- d if the i- tervals betwee- Doses 1 a- d 2 a- d Doses 2 a- d 3 are mai- tai- ed at 4 weeks a- d 12 weeks, respectively)

*ACIP off-label recommendation
http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html;
http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/a/age-interval-table.pdf

If the second dose of the 2-dose HPV vaccination series is delayed for more than a year, and the child is still eligible for the 2-dose series, will 1 additional dose complete the series?

- **Yes. Adolescents and adults who initiated the HPV vaccine series prior to the 15th birthday, and who do not have certain immunocompromising conditions, are considered adequately vaccinated with 1 additional dose of HPV vaccine**

http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html

What vaccines should an HIV-infected patient receive?

- **Inactivated vaccines that are recommended as they are for non-HIV infected persons include Flu,Tdap/Td, HepA, and MenB**
- **Inactivated vaccines as recommended for HIV-infected persons:**
  - HepB – recomme- ded for all childre- a- d for all adolesce- ts a- d adults who did - ot get a- y or all doses whe- they were you- ger
  - Hib – recomme- ded for childre- 6 weeks through 59 mo- ths; - ot recomme- ded for adults with HIV i- fectio- si- ce their risk for Hib i- fectio- is low
  - HPV – recomme- ded for males a- d females through age 26 years who did - ot get a- y or all doses whe- they were you- ger
  - Me- ACWY – recomme- ded for a- yo- e at i- creased risk, but will - eed a 2-dose primary series with doses at least 2 mo- ths apart; if primary doses give- whe- you- ger tha- 7 years of age, give i- itial booster after 3 years, followed by boosters every 5 years for as lo- g as risk co- ti- ues

http://www.cdc.gov/vaccines/schedules/index.html; http://www.cdc.gov/vaccines/hcp/acip-recs/index.html

What vaccines should an HIV-infected patient receive?

- **Inactivated vaccines recommended specifically for HIV-infected persons:**
  - PCV13 a- d PPSV23 for childre- 2 years through 5 years
    - Admi- ister PCV13 series accordi- g to childhood recomme- datio- s
    - Admi- ister PPSV23 at least 8 weeks after completio- of PCV13 series as lo- g as child is at least 2 years of age
    - Admi- ister 1 PPSV23 booster dose at least 5 years after first dose
  - PCV13 a- d PPSV23 for childre- 6 years though 18 years
    - If - either PCV13 - or PPSV23 received previously, admi- ister 1 dose of PCV13 followed by 1 dose of PPSV23 at least 8 weeks later
    - If PCV13 received previously but PPSV23 - ot, admi- ister 1 dose of PPSV23 at least 8 weeks after most rece- t dose of PCV13
    - If PPSV23 received previously but PCV13 - ot, admi- ister 1 dose of PCV13 at least 8 weeks after most rece- t dose of PPSV23
    - Admi- ister 1 PPSV23 booster dose at least 5 years after first dose

http://www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf
http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html

What vaccines should an HIV-infected patient receive?

- **Inactivated vaccines recommended specifically for HIV-infected persons:**
  - PCV13 a- d PPSV23 for adults 19 years through 64 years
    - No previous PCV13 or PPSV23: admi- ister 1 dose of PCV13 followed by 1 dose of PPSV23 at least 8 weeks later, followed by a seco- d dose of PPSV23 at least 5 years later
    - No previous PCV13 but have received 1 dose of PPSV23: admi- ister PCV13 at least 1 year after the PPSV23 dose. Admi- ister a seco- d dose of PPSV23 at least 8 weeks after PCV13 a- d at least 5 years after the first dose of PPSV23
    - No previous PCV13 but have received 2 doses of PPSV23: admi- ister PCV13 at least 1 year after the most rece- t dose of PPSV23
    - Previously received PCV13 but - ot PPSV23: admi- ister PPSV23 at least 8 weeks after PCV13. Admi- ister a seco- d dose of PPSV23 at least 5 years after the first dose of PPSV23
    - Previously received PCV13 a- d 1 dose of PPSV23: admi- ister a seco- d dose of PPSV23 at least 8 weeks after PCV13 a- d at least 5 years after the first dose of PPSV23
    - If most rece- t dose of PPSV23 admi- istered at you- ger tha- 65 years, admi- ister a fi- al dose of PPSV23 65 years or older, at least 8 weeks after PCV13 a- d at least 5 years after the last dose of PPSV23

http://www.cdc.gov/vaccines/schedules/downloads/adult/adult-schedule.pdf; http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html

What vaccines should an HIV-infected patient receive?

- **Live-virus vaccines:**
  - MMR -2 doses of MMR at least 28 days apart (Not MMRV)
    - For childre- aged 5 years or you- ger, CD4+T lymphocyte perce- tages of 15% or greater for at least 6 mo- ths
    - For perso- s with peri- atal HIV i- fectio- who were vacci- ated before establishme- t of effective a- tiretroviral therapy (ART), revacci- atio- with 2 doses at least 28 days apart o- ce effective ART has bee- established
    - For perso- s older tha- 5 years of age, CD4+T lymphocyte perce- tages of 15% or greater a- d CD4 cou- t of at least 200 lymphocytes/mm^3 for at least 6 mo- ths
  - RV
    - Vacci- atio- is a precautio- . Co- sideratio- s that support vacci- atio- :
      - HIV diag- osis might - ot be established i- i- fa- ts bor- to HIV- i- fected mothers before the age of first RV dose
      - RV vacci- e strai- s are co- siderably atte- uated

http://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf-; http://www.cdc.gov/mmwr/PDF/rr/rr5802.pdf

What vaccines should an HIV-infected patient receive?

- **Live-virus vaccines:**
  - VAR – 2 doses of VAR vacci- e 3 mo- ths apart (Not MMRV)
    - Should be co- sidered for HIV-i- fected childre- with age-specific CD4+T lymphocyte perce- tages of ≥15%
    - May be co- sidered for adolesce- ts a- d adults with CD4+T lymphocyte cou- ts ≥200 cells/µL
  - ZOS
    - Co- trai- dicated for perso- s with AIDS or other cli- ical ma- ifestatio- s of HIV, i- cludi- g perso- s with CD4+ T-lymphocyte values ≤200 per mm^3 or ≤15% of total lymphocytes

http://www.cdc.gov/mmwr/pdf/rr/rr5604.pdf; http://www.cdc.gov/mmwr/PDF/rr/rr5705.pdf

What should be done if zoster vaccine is administered by the intramuscular (IM) route instead of the subcutaneous (subcut) route?

- **Zoster vaccine is recommended to be given subcutaneously. However, intramuscular (IM) administration is not likely to decrease immunogenicity, and doses given IM do not need to be repeated**

Who should receive zoster vaccine between 50 and 59 years of age?

- **The Food and Drug Administration (FDA) has approved the use of zoster vaccine for adults as young as 50 years of age**
- **Considering that limited data are available on long-term protection provided by zoster vaccine and the fact that there is only one supplier for both varicella and zoster vaccines, ACIP declined to recommend zoster vaccine for adults 50 through 59 years of age and continues to recommend routine use for adults aged 60 years and older**
- **For providers who choose to use zoster vaccine among patients 50 through 59 years, factors that might be considered include:**
  - Particularly poor a- ticipated tolera- ce of herpes zoster or postherpetic - euralgia symptoms (e.g., attributable to preexisti- g chro- ic pai- , severe depressio- , or other comorbid co- ditio- s)
  - I- ability to tolerate treatme- t medicatio- s because of hyperse- sitivity or i- teractio- s with other medicatio- s for chro- ic co- ditio- s
  - Occupatio- al issues

http://www.cdc.gov/mmwr/pdf/wk/mm6044.pdf

Thank You!

For more information contact Donna Weaver at DWeaver1@cdc.gov

National Center for Immunization and Respiratory Diseases
Immunization Services Division

Type Your Questions in the Chat Window on the Right

After the presentation, questions may be sent to:

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701.328.3386 or toll-free 800.472.2180

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- **Post-test**
  - Nurses i- terested i- co- ti- ui- g educatio- credit, visit http://www.- dhealth.gov/disease/post/default.aspx?PostID=137
  - Successfully complete the five-questio- post-test to receive your certificate
- **Credit for this session available until January 10, 2017**
- **This presentation will be posted to our website: www.ndhealth.gov/immunize**